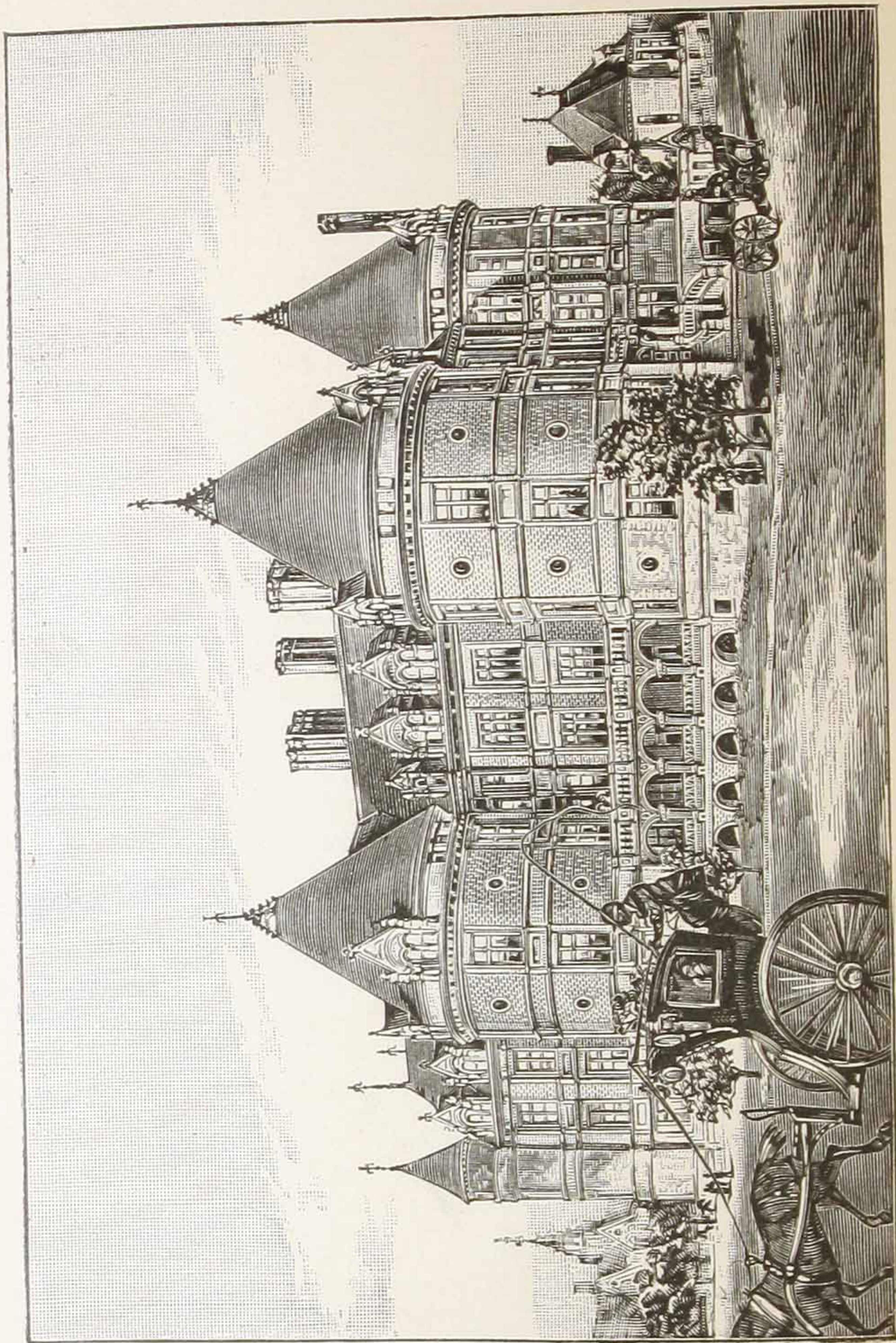


1887



Durham System of
House Drainage





NEW YORK (ASTOR) CANCER HOSPITAL.

Furnished with the Durham System of House Drainage.

MR. C. C. HAIGHT, Architect.

C. W. DURHAM, C. E.
Pres. and Gen. Manager.

H. C. VAIL,
Vice-Pres. and Treas.

The Durham Patent System
OF
Screw-Joint
Iron House Drainage,

MANUFACTURED SOLELY BY THE

Durham House Drainage Co.

OF NEW YORK.

(Under the control and management of Members of the
American Society of Civil Engineers.)

158-160 West 27th Street, New York.

40 Boylston St. (Hotel Pelham, Room 3) Boston.

AND

E. Baggot, Madison St. and Fifth Ave. Chicago,

(For Illinois, Indiana, Wisconsin, Iowa, Minnesota, Nebraska,
Dakota, and Northern Michigan.)

AT a meeting of the New York Academy of Medicine, Dr. John S. Billings concluded an address as follows:

"The real difficulty seems to me to be, not that the resources of sanitary science and engineering are not sufficient to secure safe plumbing, but that the people at large, who are willing and able to pay for good work, do not know to whom to apply to get it."

“Drainage” and “Plumbing.”

The distinction to be made between these terms is this:

DRAINAGE includes the drains, soil-pipes, waste-pipes (from basins, baths, sinks, etc.), and trap ventilating pipes (for prevention of siphonage).*

PLUMBING includes hot and cold water circulation pipes, and the setting and attaching of fixtures.

A permanently perfect system of drainage is a vital necessity.

Defective plumbing causes annoyance and expense, *but may not be detrimental to health.*

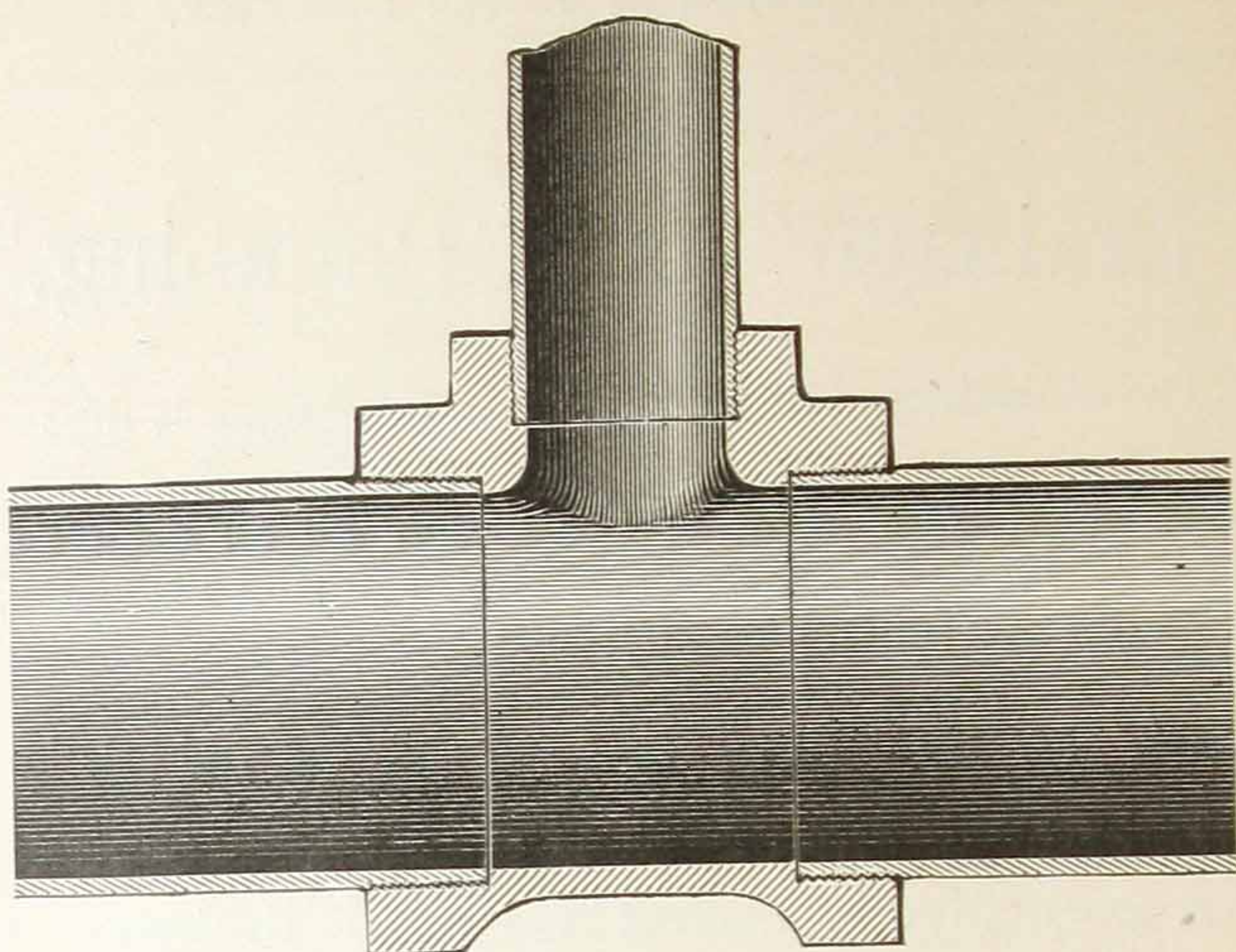
This Company makes a specialty of constructing house drainage; by confining attention to one subject we have been able to increase the efficiency of the Durham System from year to year, and to reduce the cost fully one-half since its first introduction in 1879.

Drainage is of primary importance. If buildings are furnished with the Durham System the balance of the plumbing can be safely intrusted to local plumbers.

Submit plans to us for an estimate of cost *before letting any contracts.* If the expenditure for plumbing must be limited, curtail the amount rather than accept work of inferior quality.

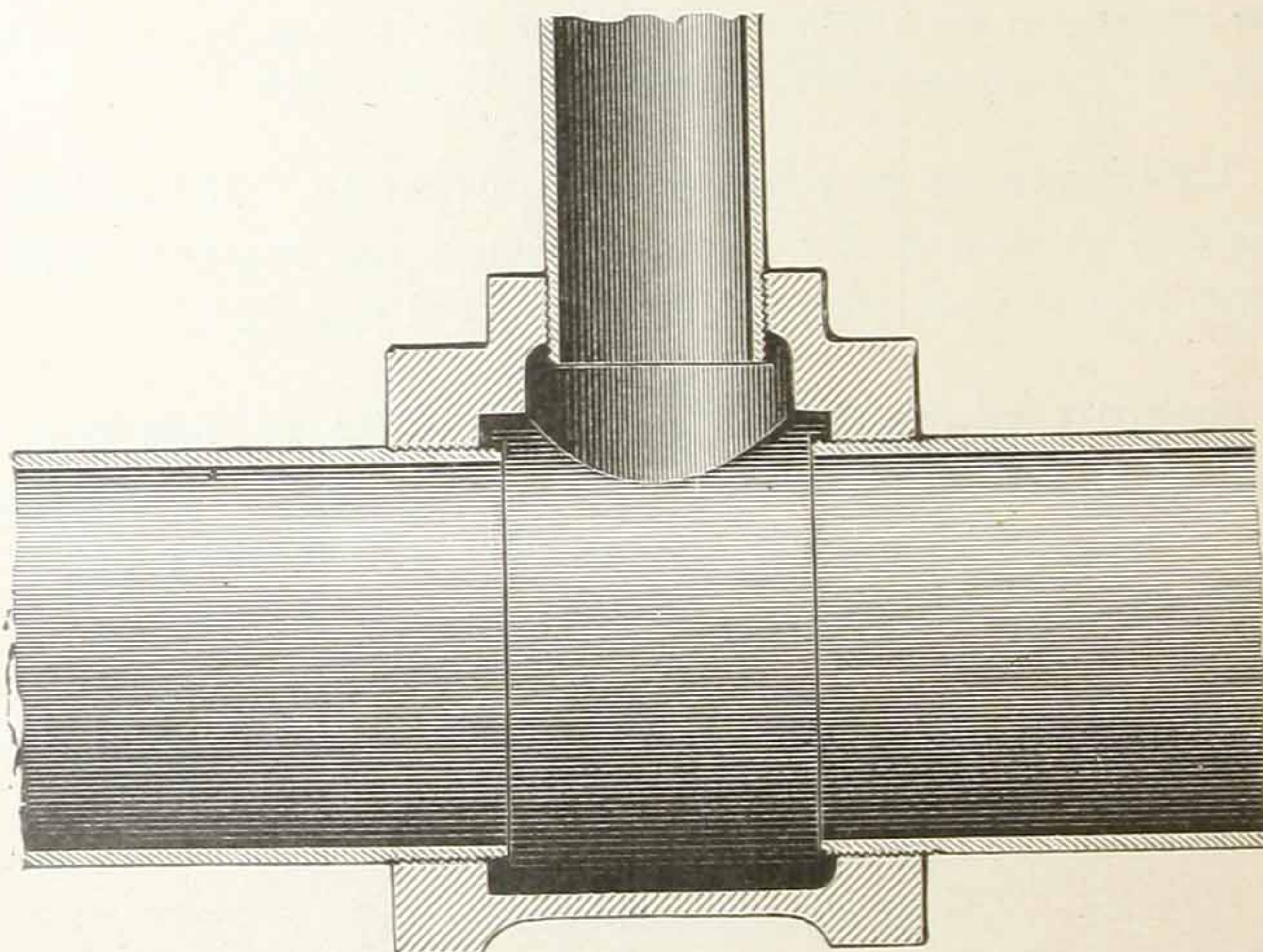
Drainage system in new buildings should be placed in position about the time the roof is put on.

* See explanatory engraving, pages 16-17.



DURHAM DRAINAGE FITTINGS

are made with an **interior shoulder** (as shown in the cut above) securing a **flush inner surface**. Ordinary steam fittings have an interior **depression** (as below) and are not suitable for drainage purposes.



The Durham System

may be broadly described as a combination of scientific design, proper materials, and correct mechanical construction,—*a common-sense application of obvious means to secure a result of vital importance.*

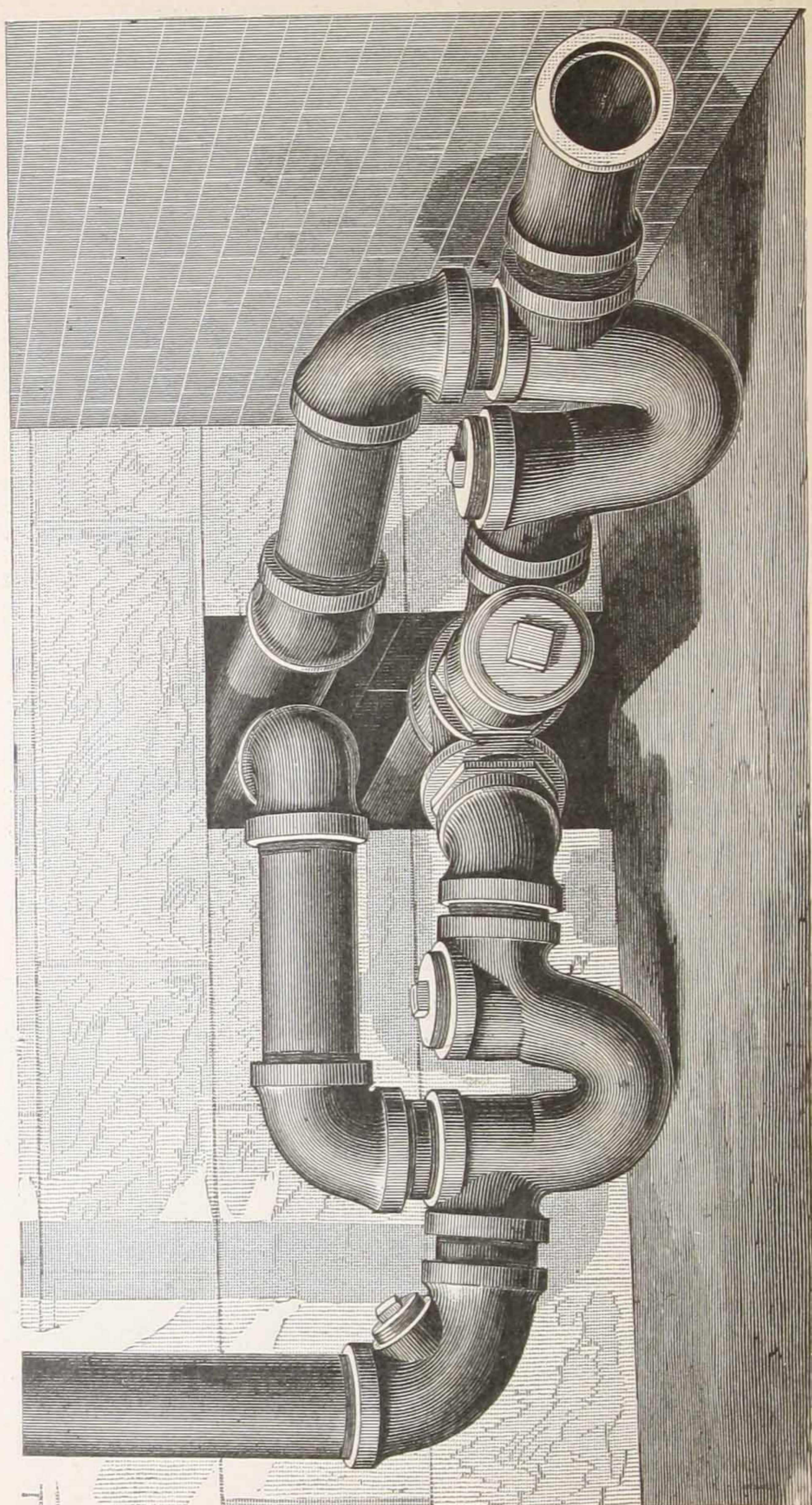
The design of the work, the materials used, and the workmanship employed are an entire departure from the ordinary plumbing practice.

The result attained is a system of pipes which are independent of the building for support, which cannot be cracked or broken, and whose joints are permanently gas-tight beyond the shadow of a doubt.

Proper mechanical construction is the foundation of good drainage. The Durham System is a *drainage apparatus* constructed with wrought-iron (steam) pipe and heavy cast-iron fittings of special shapes, *screwed together*. This apparatus, when erected in a building, is steam-tight, elastic under pressure, and at all points absolutely invulnerable; it will last, unimpaired, as long as any building will stand—*without any outlay for repairs.*

PATENTED.—The Durham System is fully covered by patents. No patent could be obtained on the use of wrought-iron pipe, or screw joints, for drainage purposes; but the combination of wrought-iron pipe and special screwed fittings, which constitute a “new and improved” drainage apparatus, is patentable. The cost of the Durham System to the public, however, is no greater for the patents. They were secured for protection, and are not used for extortion.

Durham fittings are manufactured solely by this Company, and cannot be purchased elsewhere. Imitations of the Durham System, constructed partly with ordinary steam fittings and other foreign materials, are occasionally palmed off on unsuspecting and too-credulous customers. **Order your drainage direct from this Company or its authorized agents.**



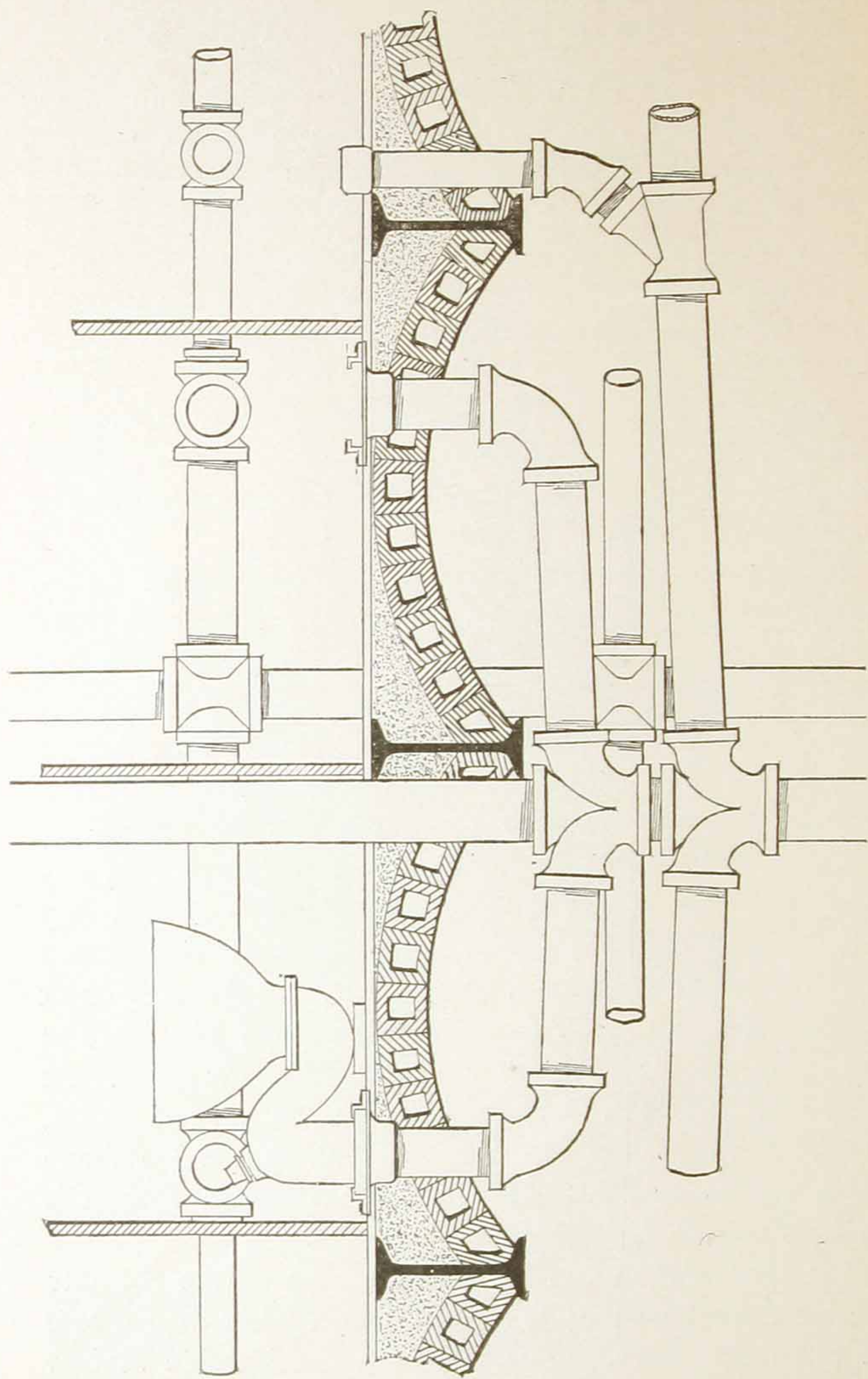
Sewer Connection (Durham System), NEW YORK CANCER HOSPITAL.—From Engineering News.

Mechanical Advantages.

Joints: The screw threads on the pipes and in the fittings are cut by powerful machines, run by steam power, to standard gauge, so that they exactly correspond. The threads are tapering, so that the further the pipe enters the fitting the tighter becomes the joint between the two. The threads are first covered with a thick paste of red lead and oil and the pipe then screwed *home* by means of steam-fitters' chain tongs, by which a man can exert a powerful leverage. This work requires no skill—merely strength—and it is done in a moment. *A laborer can make a tighter screw joint in one minute than a plumber with his materials could make in one hour.*

Exposing Pipes: Pipes should not be buried underground (within the building), nor hidden within the walls. It is a great satisfaction to be able at any time to examine drains and soil-pipes without the expense of tearing up. With the Durham System there is absolutely no objection to their being in plain sight everywhere; *there are no joints between floor and ceiling*; the pipes can be painted or bronzed, and do not betray their use or purpose in any manner. They simply look like steam pipes,—which they actually are,—and the public have long been accustomed to the presence of steam-heating pipes. In the New-York Cancer Hospital 3000 feet of our drainage pipes are in plain view, except where they pass through the floors. At the School of Mines, Columbia College, the store of Messrs. Brooks Brothers, 22d Street and Broadway, the De Vinne Press, and many other buildings, the Durham System is similarly arranged.

Smaller Pipes can be used because of the absolute interior smoothness,—one inch in diameter less than is safe for plumbers' work. This effects a considerable saving. *One 3-inch pipe serves two houses at Pullman.*



General arrangement of Drainage and Ventilation Pipes in the DEVINNE PRESS BUILDING, Lafayette Place and 4th Street, N. Y.
Messrs. BABB, COOK & WILLARD, Architects.
(The Century Magazine.)

Changes and Additions of fixtures are easily and skillfully made, at very small expense, without disturbing neighboring joints. We have inserted water-closet fittings in the middle of soil-pipe stacks, one hundred feet high, at a trifling expense.

Hand-holes, closed by screw plugs, are provided at every change of direction. The owner, with the aid of a wrench, can examine the interior condition of his drains, or remove an obstruction, without incurring a plumber's bill of expenses.

Tests can be made conveniently when the Durham System is finished, by screwing plugs into all openings and turning on steam, or *filling the System with water to the tops of soil-pipes*. No other than a *pressure* test of drainage is of any value.

OPPOSITION

TO THE INTRODUCTION OF THE DURHAM SYSTEM.

With some honorable exceptions, the plumbing trade generally have vigorously opposed the introduction of the Durham System. This was to be expected, as innovations are objectionable to every well-established line of trade; and it is not in human nature to cordially welcome a loss or disturbance of business. The principal reason *alleged* for their opposition to a system of plumbing which is universally conceded by all *disinterested* persons to be the best possible, is that wrought-iron pipe is not suitable for the purposes of drainage, because *it rusts faster than cast-iron*. This is really a fact when both kinds of pipe are *unprotected* against corrosion. Tests have been made showing that cast-iron, unprotected, lasts, under certain conditions, one-fourth longer than wrought-iron. But when properly asphalted, painted, or oxidized, wrought-iron pipe is now preferred by engineers for many uses for which cast-iron was formerly supposed to be indispensable; just as wrought-iron bridges have superseded cast-iron. The plumbers use arguments which were current ten years ago, and would create the impression that wrought-iron drains and soil-pipes will rust out in a few months, whereas asphalted pipe has an official record of 25 years *without appreciable decay*! Furthermore, plumbers themselves use wrought-iron pipe for gas and water; and with the growing practice of exposing, instead of hiding, drainage pipes, the owner can at any time make a hammer test of his pipes. If after 30 or 40 years a piece should be found rusted through, the cost of replacing it with a new piece would be trifling.

Thousands of miles of wrought-iron pipe are now in use, *buried in the ground*, for the conveyance of petroleum, natural gas, water, and steam. *If cast-iron pipe were better, would it not be used?*

The economy of using a class of work which will require *no outlay for repairs* in a lifetime will be apparent to those who build wisely; while the superior hygienic conditions to be secured will appeal to those who recognize the importance of shutting out sewer air from their houses.